REMARKS

This application has been carefully reviewed in light of the Office Action dated April 29, 2004. Claims 1 to 18 remain pending in the application, of which Claims 1, 3, 6, 7, 9, 10, 11, 12, 14, 15, 16 and 17 are independent. Reconsideration and further examination are respectfully requested.

The title was objected to. A new title, which is more descriptive of the claimed invention, has been provided for as recited above and therefore, withdrawal of the objection is respectfully requested.

Claims 1 to 6, 9 to 11 and 14 to 16 were rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent No. 6,538,762 (Terashima), and Claims 7, 8, 12, 13, 17 and 18 were rejected under 35 U.S.C. § 103(a) over Terashima in view of U.S. Patent No. 5,854,882 (Wang). Reconsideration and withdrawal of the rejections are respectfully requested.

The present concerns controlling dot connectivity in a binary image. According to one aspect of the invention, dot connectivity in a binary image is controlled when binarization is performed on the binary image, where the dot connectivity is controlled based upon any of (a) characteristic information concerning dot reproducibility received from an external image output device, (b) characteristic information concerning dot reproducibility of an external image output device stored in a storage medium, (c) a parameter for controlling dot connectivity received from an external image output device via a network, or (d) a parameter calculated for controlling dot connectivity calculated from a read test pattern. As a result, the binary image can be binarized according to the reproducibility of the image output device for which the image is to be printed on.

With specific reference to the claims, amended independent Claim 1 is an image processing apparatus having input means for inputting, pixel by pixel, a multilevel image containing gray-scale information, and binarization means for binarizing the

multilevel image, which has been input by the input means, to a binary image, the apparatus comprising communication means for communicating with an external image output device via a network, characteristic-information storage means for receiving characteristic information concerning dot reproducibility from the external image output device by the communication means and storing the characteristic information, connectivity control means for controlling dot connectivity in the binary image when binarization is performed, based upon the characteristic information stored by the characteristic-information storage means, and transmitting means for transmitting the binary image in which the dot connectivity has been controlled by the connectivity control means, to the external image output device via the communication means.

Amended independent Claims 9 and 14 are method and computer-readable storage medium claims, respectively, that substantially correspond to Claim 1.

Amended independent Claim 3 is an image processing apparatus having input means for inputting, pixel by pixel, a multilevel image containing gray-scale information, and binarization means for binarizing the multilevel image, which has been input by the input means, to a binary image, the apparatus comprising communication means for communicating with an external image output device via a network, characteristic-information storage means for storing characteristic information concerning dot reproducibility of the external image output device, connectivity control means for controlling dot connectivity in the binary image when binarization is performed, based upon the characteristic information stored by the characteristic-information storage means, and transmitting means for transmitting the binary image, in which the dot connectivity has been controlled by the connectivity control means, to the external image output device via the communication means.

Amended independent Claims 10 and 15 are method and computer-readable storage medium claims, respectively, that substantially correspond to Claim 3.

Amended independent Claim 6 is an image processing apparatus having input means for inputting, pixel by pixel, a multilevel image containing gray-scale information, and binarization means for binarizing the multilevel image, which has been input by the input means, to a binary image, the apparatus comprising reception means for receiving a parameter from an external image output device via a network, the parameter controlling dot connectivity in the binary image binarized by the binarization means, connectivity control means for controlling dot connectivity in the binary image when binarization is performed, based upon the parameter received by the reception means, and transmitting means for transmitting the binary image in which the dot connectivity has been controlled by the connectivity control means, to the external image output device.

Amended independent Claims 11 and 16 are method and computer-readable storage medium claims, respectively, that substantially correspond to Claim 6.

Amended independent Claim 7 is an image processing apparatus having input means for inputting, pixel by pixel, a multilevel image containing gray-scale information, and binarization means for binarizing the multilevel image, which has been input by the input means, to a binary image, the apparatus comprising communication means for communicating with an external image output device via a network, reading means for reading a test pattern, parameter calculation means for calculating a parameter in conformity with the test pattern read by the reading means, connectivity control means for controlling dot connectivity in a binary image when binarization is performed, based upon the parameter calculated by the parameter calculation means, and transmitting means for transmitting the binary image in which the dot connectivity has been controlled by the connectivity control means, to the external image output device via the communication means.

Amended independent Claims 12 and 17 are method and computer-readable storage medium claims, respectively, that substantially correspond to Claim 7.

The applied art, alone or in any permissible combination, is not seen to disclose or to suggest the features of the present invention. More specifically, the applied art is not seen to disclose or to suggest at least the feature of controlling dot connectivity in a binary image when binarization is performed on the binary image, where the dot connectivity is controlled based upon (a) characteristic information concerning dot reproducibility received from an external image output device (Claims 1, 9 and 14), (b) characteristic information concerning dot reproducibility of an external image output device stored in a storage medium (Claims 3, 10 and 15), (c) a parameter for controlling dot connectivity received from an external image output device via a network (Claims 6, 11 and 16), or (d) a parameter calculated for controlling dot connectivity calculated from a read test pattern (Claims 7, 12 and 17).

Terashima is merely seen to disclose that a data transfer command is transmitted from a host computer to a printer-control-only circuit. In the data transfer command, a command for setting a color conversion/halftoning parameter and a command for setting a backend parameter are included. (See column 5, lines 1 to 31). A more detailed description of the contents of the Color Conversion/halftoning Parameter Setting Command and the Backend Parameter Setting Command are described in column 6, lines 1 to 14, and column 6, lines 15 to 38, respectively. The printer-control-only circuit receives these commands and raster image data and converts the raster image data to binary raster image data transmitted to a printer in accordance with the commands. However, the commands of Terashima are not seen to concern dot reproducibility of an image output device. Moreover, Terashima is not seen to control dot connectivity of a binary image when the binary image is binarized based on any of (a) characteristic information concerning dot reproducibility received from an external image output device, (b) characteristic information concerning dot reproducibility of an external image output device stored in a storage medium, (c) a parameter for controlling dot connectivity received

from an external image output device via a network, or (d) a parameter calculated for controlling dot connectivity calculated from a read test pattern. Accordingly, Terashima is not seen to disclose or to suggest the features of the present invention.

Wang has been studied but is not seen to add anything that, when combined with Terashima, would have overcome the foregoing deficiencies. In this regard, Wang is merely seen to disclose a technique to control dot overlap of each color component in order to resolve problems associated with the color appearance of the image when the image is reproduced. Thus, while Wang may control dot overlap, it is not seen to control dot connectivity of a binary image when the binary image is binarized based on any of (a) characteristic information concerning dot reproducibility received from an external image output device, (b) characteristic information concerning dot reproducibility of an external image output device stored in a storage medium, (c) a parameter for controlling dot connectivity received from an external image output device via a network, or (d) a parameter calculated for controlling dot connectivity calculated from a read test pattern. Accordingly, even if Wang could have been combined with Terashima, such a combination still would not have resulted in the present invention.

In view of the foregoing amendments and remarks, all of Claims 1 to 18 are believed to be allowable. As such, the entire application is believed to be in condition for allowance and such action is respectfully requested at the Examiner's earliest convenience.

Applicants' undersigned attorney may be reached in our Costa Mesa, California office by telephone at (714) 540-8700. All correspondence should continue to be directed to our address given below.

Respectfully submitted,

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